



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,500	08/31/2001	Yoshio Okamoto	503.40576X00	8164

20457 7590 01/13/2004

ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-9889

EXAMINER

CASTRO, ARNOLD

ART UNIT PAPER NUMBER

3747

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/943,500

Applicant(s)

OKAMOTO ET AL.

Examiner

Arnold Castro

Art Unit

3747

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of species 1 in Paper No. 4 is acknowledged.

***Claim Objections***

2. Claim 1 is objected to because of the following informalities: in last line the word "spay" should be --spray--. The work is also misspelled in the description. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 3747

4. Claims 1-3, 6, are rejected under 35 U.S.C. 102(e) as being anticipated by Dobin (US 6,405,945).

Dobin discloses in figures 2 and 5 and col. 3 line 50-col. 4 line 27 a fuel injection valve comprising: a valve seat (48) and a valve disc (22) arranged detachably from and attachably to said valve seat; two fuel injection holes (44) arranged in a downstream side of said valve seat; and swirl force adding means (38,36) for adding a swirl force to fuel, said swirl force adding means being arranged in an upstream side of said fuel injection holes and in a downstream side of said valve seat corresponding to each of said fuel injection holes so that fuel may be sprayed through said two fuel spray holes toward two directions. A first plate member (13) having two fuel injection holes (44), said two fuel injection holes penetrating through said first plate member (13) from an upstream side end surface to a downstream side end surface so as to be directed in directions different from each other, said two fuel injection holes being independently juxtaposed in a surface direction of the upstream side end surface and the downstream side end surface; and a second plate (11) member having said two swirl force adding means (36,38), said two swirl force adding means being formed of two through holes penetrating through said second plate member from an upstream side end surface to a downstream side end surface and independently juxtaposed in a surface direction of the upstream side end surface and the downstream side end surface; and fuel passages provided in said individual through holes, said fuel passage being directed toward a direction offset with respect to a center of said fuel passage to communicate with said fuel passage, wherein said first plate member and said second plate member are piled

up in order of said first plate member and said second plate member from the downstream side of fuel flow so that said two through holes of said second plate member individually communicate with said two fuel injection holes of said first plate member.

Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Okamoto et al. (US/6,216,665). Okamoto et al. discloses a fuel injection valve comprising: a valve seat (9) and a valve disc arranged detachably from and attachably to said valve seat; a fuel injection hole (8) for injecting fuel in two directions, said fuel injection hole being arranged in a downstream side of said valve seat; and means for making penetration different between fuel sprays injected in individual directions. See claims 1-3.

5. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated Matsumoto, Hiromitsu (US/ 5,769,060).

Matsumoto discloses a fuel injection system comprising an intake pipe (75) for supplying air to an internal combustion engine; an intake air flow control device (302) for controlling an air flow flowing inside said intake pipe; and a fuel injection valve (78) for injecting fuel, said fuel injection valve being arranged at a position downstream of said intake air flow control device inside said intake pipe, wherein said fuel injection valve is a fuel injection valve for injecting fuel in two directions, and said fuel injection valve has a means for making penetration different between fuel sprays injected in individual directions. See figure 27.

***Allowable Subject Matter***

6. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are listed in the attached pto-892 and consist of various fuel injection system having multiple spray patterns or swirl control valves.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold Castro+++++++ whose telephone number is (703) 305-0039. The examiner can normally be reached on 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yuen Henry can be reached on (703) 308-1946. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



MAHMOUD GIMIE  
PRIMARY PATENT EXAMINER  
ART UNIT 3747



Arnold Castro  
Examiner  
Art Unit 3747

AC